



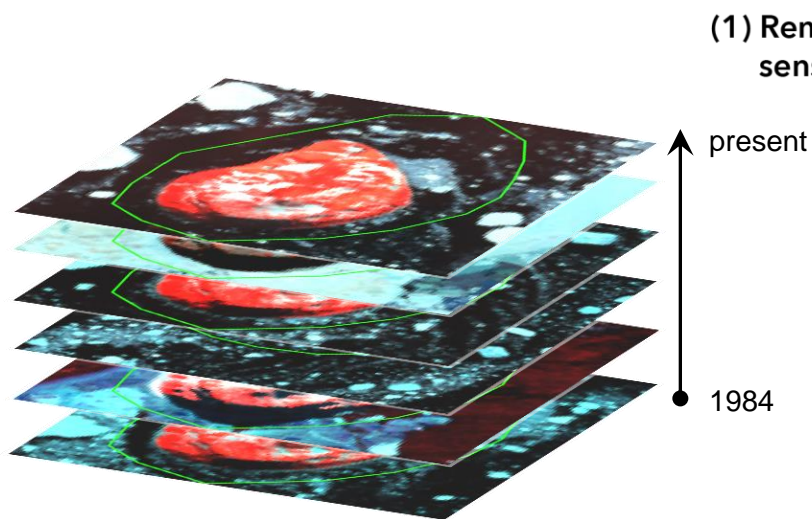
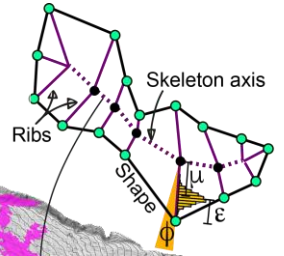
# Lynch-Image super-resolution for population tipping points

Heather J. Lynch, Christian Che-Castaldo, Dimitris Samaras, Matthew Schwaller, Stony Brook University  
Ph.D. students: Carole Hall (Applied Math), Alex Graikos (Computer Science), Clare Flynn (Ecology)

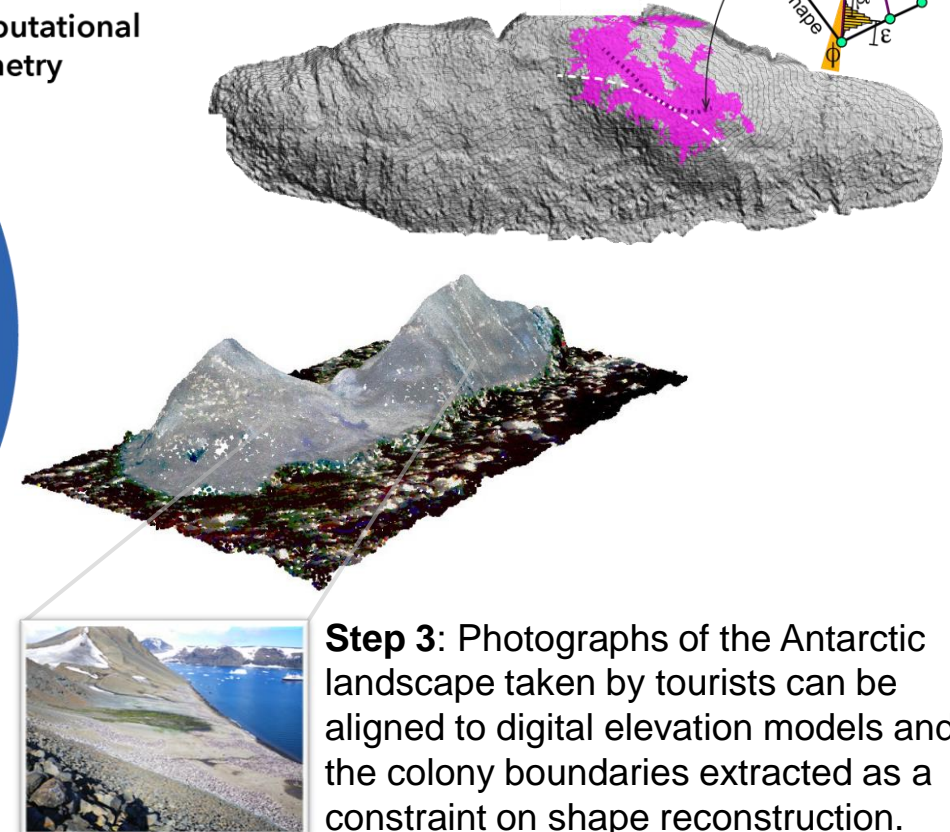
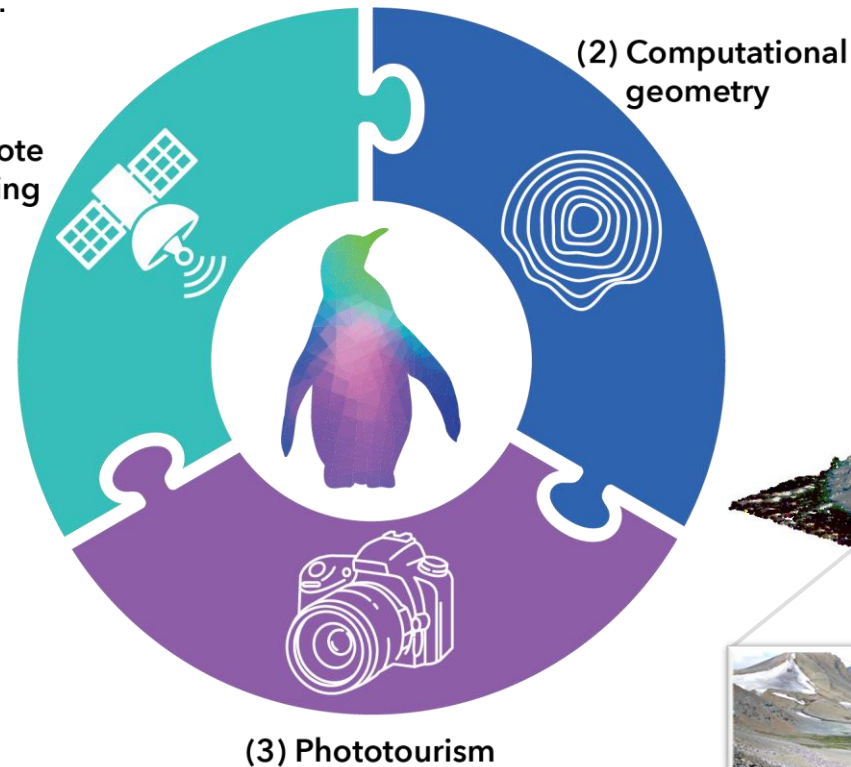


**Step 1:** Landsat images over penguin colonies are georegistered and stacked for a super-resolution methodology based on 'detection modelling' in wildlife ecology.

**Step 2:** Computational geometry is used to reconstruct the most likely shape given the Landsat estimates.



- processed 20,502 Landsat 5-7 images from 1984 to present



**Step 3:** Photographs of the Antarctic landscape taken by tourists can be aligned to digital elevation models and the colony boundaries extracted as a constraint on shape reconstruction.